

ANSWER 16 OF 61 HCPLUS COPYRIGHT 2005 ACS on STN

AN 2004:665492 HCPLUS
DN 141:361262
ED Entered STN: 16 Aug 2004
TI Increased production of *Bacillus* keratinase by chromosomal integration of multiple copies of the **kerA** gene
AU Wang, Jeng-Jie; Rojanatavorn, Kawan; Shih, Jason C. H.
CS BioResource International, Inc., Raleigh, NC, 27606, USA
SO Biotechnology and Bioengineering (2004), 87(4), 459-464
CODEN: BIBIAU; ISSN: 0006-3592
PB John Wiley & Sons, Inc.
DT Journal
LA English
CC 3-2 (Biochemical Genetics)
Section cross-reference(s): 10, 16
AB To increase the production of keratinase, stable strains of *Bacillus licheniformis* carrying multiple keratinase gene copies in the chromosome were developed. Integrative vectors carrying **kerA** with or without P43-promoter were constructed and subcloned into *B. licheniformis* T399D and *Bacillus subtilis* DB104. In T399D, multiple copies of **kerA** integration into the chromosome were identified and determined by Southern blot. The optimal integration of **kerA** was found in the range of 3-5 copies. Higher integration of gene copies (>5) caused reduced processing and secretion of the extracellular keratinase. In DB104, **kerA** was cloned in the plasmid, not integrated into the chromosome. The strong constitutive promoter P43 not only increased the keratinase production in plasmid-based expression in DB104 but also improved the enzyme yield of the integrants of T399D. New strains were able to enhance cell growth and enzyme yield at higher concns. of medium substrate. When they were grown in either soy or feather medium, the keratinase activity was stable and improved by about 4-6 times.
ST Bacillus keratinase prodn chromosome integration **kerA** gene
IT Culture media

L3 ANSWER 3 OF 14 HCAPLUS COPYRIGHT 2005 ACS on STN
AN 1996:666223 HCAPLUS
DN 125:296138
TI Hydrolysis of feather keratin by immobilized keratinase
AU Lin, Xiang; **Shih, Jason C. H.**; Swaisgood, Harold E.
CS Dep. Poultry Sci. and Food Sci., North Carolina State Univ., Raleigh, NC,
27695-7608, USA
SO Applied and Environmental Microbiology (1996), 62(11), 4273-4275
CODEN: AEMIDF; ISSN: 0099-2240
PB American Society for Microbiology
DT Journal
LA English

L3 ANSWER 4 OF 14 HCAPLUS COPYRIGHT 2005 ACS on STN
AN 1996:410985 HCAPLUS
DN 125:94717
TI Process and apparatus for anaerobic digestion of organic carbonaceous
materials
IN Shih, Jason C. H.
PA North Carolina State University, USA
SO U.S., 7 pp.
CODEN: USXXAM
DT Patent
LA English
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 5525229	A	19960611	US 1994-305846	19940914 <--
PRAI	US 1994-305846			19940914	

L3 ANSWER 5 OF 14 HCAPLUS COPYRIGHT 2005 ACS on STN
 AN 1996:95127 HCAPLUS
 DN 124:139750
 TI Cloning of gene for keratinase of *Bacillus licheniformis* strain PWD-1
 IN Shih, Jason C. H.; Lin, Xiang; Miller, Eric S.
 PA North Carolina State University, USA
 SO PCT Int. Appl., 25 pp.
 CODEN: PIXXD2
 DT Patent
 LA English
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 9533056	A1	19951207	WO 1995-US5635	19950505 <--
	W: AM, AT, AU, BB, BG, BR, BY, CA, CH, CN, CZ, DE, DK, EE, ES, FI, GB, GE, HU, IS, JP, KE, KG, KP, KR, KZ, LK, LR, LT, LU, LV, MD, MG, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, TJ, TM, TT				
	RW: KE, MW, SD, SZ, UG, AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG				
	CA 2191222	AA	19951207	CA 1995-2191222	19950505 <--
	CA 2191222	C	20011002		
	AU 9524721	A1	19951221	AU 1995-24721	19950505 <--
	AU 696418	B2	19980910		
	EP 764211	A1	19970326	EP 1995-919005	19950505 <--
	EP 764211	B1	20030716		
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LI, LU, MC, NL, PT, SE				
	BR 9507770	A	19970902	BR 1995-7770	19950505 <--
	CN 1166859	A	19971203	CN 1995-194067	19950505 <--
	JP 10500863	T2	19980127	JP 1995-500873	19950505 <--
	AT 245195	E	20030815	AT 1995-919005	19950505
	ZA 9504228	A	19960122	ZA 1995-4228	19950524 <--
	US 5712147	A	19980127	US 1996-685774	19960724 <--
	NO 9604997	A	19961122	NO 1996-4997	19961122 <--
PRAI	US 1994-250028	A	19940527		
	WO 1995-US5635	W	19950505		

L3 ANSWER 7 OF 14 HCAPLUS COPYRIGHT 2005 ACS on STN
AN 1995:479629 HCAPLUS
DN 123:162479
TI Nucleotide sequence and expression of kerA, the gene encoding a
keratinolytic protease of *Bacillus licheniformis* PWD-1
AU Lin, Xiang; Kelemen, Donald W.; Miller, Eric S.; Shih, Jason C. H.
CS Departments Poultry Science Microbiology, North Carolina State University,
Raleigh, NC, 27695-7608, USA
SO Applied and Environmental Microbiology (1995), 61(4), 1469-74
CODEN: AEMIDF; ISSN: 0099-2240
PB American Society for Microbiology
DT Journal
LA English

L3 ANSWER 9 OF 14 HCPLUS COPYRIGHT 2005 ACS on STN
AN 1993:75842 HCPLUS
DN 118:75842
TI Purification and characterization of a keratinase from a feather-degrading
Bacillus licheniformis strain
AU Lin, Xiang; Lee, Chung Ginn; Casale, Ellen S.; **Shih, Jason C. H.**
CS Dep. Poultry Sci., North Carolina State Univ., Raleigh, NC, 27695-7608,
USA
SO Applied and Environmental Microbiology (1992), 58(10), 3271-5
CODEN: AEMIDF; ISSN: 0099-2240
DT Journal
LA English